



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/598,574	03/19/2007	Roberto Magri	4015-5834	7319
24112 7590 05/21/2010 COATS & BENNETT, PLLC 1400 Crescent Green, Suite 300 Cary, NC 27518			EXAMINER CURS, NATHAN M	
			ART UNIT 2613	PAPER NUMBER
			MAIL DATE 05/21/2010	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/598,574	Applicant(s) MAGRI ET AL.	
	Examiner NATHAN M. CURS	Art Unit 2613	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 February 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 8-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 8-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>11/09</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 8-10, 12-14 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Caprino et al. ("Caprino") (WO 02/080409) in view of Arecco et al. ("Arecco") (US Patent Application Publication No. 2003/0194232).

Regarding claim 8, Caprino discloses an optical add/drop amplification node configured to communicatively interconnect first and second optical fiber spans in an optical telecommunications system (fig. 1 and page 4 lines 17-22), the node comprising: a channel add/drop device (fig. 1 element 15 and page 4 line 27 to page 5 line 4); an output amplifier coupled to an output of the channel add/drop device (fig. 1 element 16 and page 5 lines 2-4); a first input amplifier communicatively coupled between the first optical fiber span and an input of the channel add/drop device, and configured to output optical signals at a substantially constant output power, such that an output power of amplified spontaneous emission (ASE) noise produced by the first input amplifier compensates for a loss of signal power due to a break in the first optical fiber span (fig. 1 element 13 and page 4 lines 23-25 and page 5 lines 20-29). Caprino does not disclose a second input amplifier configured to generate the compensating ASE noise

Art Unit: 2613

responsive to a failure of the first input amplifier. Arecco discloses using amplifiers in an optical communication system, including parallel switched amplifier paths, and switching to the backup second amplifier path when there is a failure in a first amplifier path (fig. 2 and paragraphs 0126-0134 in light of fig. 1 and paragraphs 0069-0074). It would have been obvious to one of ordinary skill in the art at the time of the invention to duplicate the first input amplifier of Caprino as a backup second amplifier using a switch configuration like that of Arecco, to provide the benefit of continued constant output power when there is a failure of the first input amplifier.

Regarding claim 9, the combination of Caprino and Arecco discloses the optical add/drop amplification node of claim 8 wherein the second input amplifier is coupled to the first input amplifier (Arecco: fig. 2, as applicable in the combination, where the amplifiers are coupled in parallel), and is configured to generate the compensating ASE noise responsive to detecting the failure of the first input amplifier (Caprino: fig. 1 and Arecco: fig. 2, as applicable in the combination, where the duplicated amplifier in the backup branch of the combination functions like the first input amplifier after the switch).

Regarding claim 10, the combination of Caprino and Arecco discloses the optical add/drop amplification node of claim 9 wherein the second input amplifier is coupled to switch on responsive to detecting the failure of the first input amplifier (Arecco: paragraph 0069, as applicable in the combination).

Regarding claim 12, the combination of Caprino and Arecco discloses the optical add/drop amplification node of claim 10 wherein the second input amplifier is configured to generate the compensating ASE noise at substantially the same constant output

Art Unit: 2613

power as the first input amplifier prior to the failure of the first input amplifier (Caprino: fig. 1 and Arecco: fig. 2, as applicable in the combination, where the duplicated amplifier in the backup branch of the combination functions like the first amplifier after switch).

Regarding claim 13, the combination of Caprino and Arecco discloses the optical add/drop amplification node of claim 8 wherein the channel add/drop device comprises an Optical Add/Drop Multiplexer (OADM) device (Caprino: fig. 1 element 16).

Regarding claim 14, Caprino discloses a method of maintaining channels added at an optical add/drop amplification node disposed between first and second optical fiber spans in an optical telecommunications system (fig. 1 and page 1 lines 5-8 and page 4 lines 17-22), the method comprising: outputting amplified spontaneous emission (ASE) noise from a first input amplifier, such that an output power of the ASE noise compensates for a loss of signal power due to a break in the first optical fiber span (fig. 1 element 13 and page 4 lines 23-25 and page 5 lines 20-29). Caprino does not disclose generating the ASE noise at a second input amplifier communicatively coupled to the first input amplifier responsive to detecting a failure of the first input amplifier. Arecco discloses using amplifiers in an optical communication system, including parallel switched amplifier paths, and switching to the backup second amplifier path when there is a failure in a first amplifier path (fig. 2 and paragraphs 0126-0134 in light of fig. 1 and paragraphs 0069-0074). It would have been obvious to one of ordinary skill in the art at the time of the invention to duplicate the first input amplifier of Caprino as a backup second amplifier using a parallel switch coupling configuration like that of Arecco, to

Art Unit: 2613

provide the benefit of continued constant output power when there is a failure of the first input amplifier.

Regarding claim 19, the combination of Caprino and Arecco discloses the method of claim 14 wherein generating the ASE noise at a second input amplifier comprises outputting the ASE noise at substantially the same constant output power as the first input amplifier prior to the failure of the first input amplifier (Caprino: fig. 1 and Arecco: fig. 2, as applicable in the combination, where the duplicated amplifier in the backup branch of the combination functions like the first input amplifier after the switch).

3. Claims 11 and 15-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Caprino (WO 02/080409) in view of Arecco (US Patent Application Publication No. 2003/0194232) as applied to claims 1-10, 12-14 and 19 above, and further in view of Ishimura et al. (US Patent No. 5440418).

Regarding claim 11, the combination of Caprino and Arecco discloses the optical add/drop amplification node of claim 10 but does not disclose that the second input amplifier comprises a photodiode configured to sense light output by a monitor output of the first input amplifier. However, Arecco discloses monitoring for failure (paragraph: paragraph 0069), and Ishimura discloses monitoring the output of an optical amplifier to determine amplifier failure (fig. 1 and col. 3 lines 7-15). Further, the Office takes official notice that photodiodes are well known for detecting optical signals for optical signal monitors. Also, Ishimura discloses the monitor in the amplifier itself and not in another amplifier. However, the claimed monitor being in the second amplifier, as opposed to in

Art Unit: 2613

the first amplifier or somewhere else, is merely design choice. One of ordinary skill in the art at the time of the invention could have modified the combination, monitoring for failure of the first amplifier using a photodiode located in the second coupled to the first amplifier output, and the results would have been predictable; namely, the monitoring circuit would provide a failure indication when the first amplifier fails, for use in switching amplifiers. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the combination to monitor for failure of the first amplifier using a photodiode located in the second coupled to the first amplifier output, for the predictable result of the monitoring circuit providing a failure indication when the first amplifier fails, for use in switching amplifiers.

Regarding claim 15, the combination of Caprino and Arecco discloses the method claim 14 but does not disclose monitoring the first input amplifier at the second input amplifier. However, Arecco discloses monitoring for failure (paragraph: paragraph 0069), and Ishimura discloses monitoring the output of an optical amplifier to determine amplifier failure (fig. 1 and col. 3 lines 7-15). Further, the Office takes official notice that photodiodes are well known for detecting optical signals for optical signal monitors. Also, Ishimura discloses the monitor in the amplifier itself and not in another amplifier. However, the claimed monitor being in the second amplifier, as opposed to in the first amplifier or somewhere else, is merely design choice. One of ordinary skill in the art at the time of the invention could have modified the combination, monitoring for failure of the first amplifier using a photodiode located in the second coupled to the first amplifier output, and the results would have been predictable; namely, the monitoring circuit

Art Unit: 2613

would provide a failure indication when the first amplifier fails, for use in switching amplifiers. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the combination to monitor for failure of the first amplifier using a photodiode located in the second coupled to the first amplifier output, for the predictable result of the monitoring circuit providing a failure indication when the first amplifier fails, for use in switching amplifiers.

Regarding claim 16, the combination of Caprino, Arecco and Ishimura discloses the method of claim 15 wherein monitoring the first input amplifier at the second input amplifier comprises sensing light output by a monitor output of the first input amplifier (Ishimura: fig. 1 elements 7 and 10, as applicable in the modified combination as described above).

Regarding claim 17, the combination of Caprino, Arecco and Ishimura discloses the method of claim 16 further comprising detecting that the first input amplifier has failed responsive to failing to sense the light output by the monitor output (Ishimura: fig. 1 elements 7 and 10 and col. 3 lines 7-15, as applicable in the modified combination as described above).

Regarding claim 18, the combination of Caprino, Arecco and Ishimura discloses the method of claim 16 further comprising switching the second input amplifier on to generate the ASE noise responsive to detecting that the first input amplifier has failed (fig. 2 and paragraphs 0126-0134 in light of fig. 1 and paragraphs 0069-0074).

Response to Arguments

4. Applicant's arguments filed 24 February 2010 have been fully considered but they are not persuasive.

Applicant argues that Arecco teaches changing transmission paths instead of teaching a second input amplifier configured to generate compensating ASE noise in response to a failure of the first input amplifier. This argument is not persuasive because in general, the use of patents and patent application publications as references is not limited to what the patentees or applicants describe as their own inventions or to the problems with which they are concerned. They are part of the literature of the art, relevant for all they contain. Thus, the specific applications and problems of concern to Arecco does not limit the more general and relevant concept one of ordinary skill in the art would have recognized from Arecco, namely, switching to a backup amplifier to perform the function previously performed by a now failed amplifier between two points. Specifically, Arecco shows that an amplifier failure problem can be remedied by using a switch at each of two points on either side of the failed amplifier, the switches connecting to a backup amplifier therebetween. Arecco need not also teach the subject matter of an *input* type amplifier generating *compensating ASE noise* because Caprino already discloses an input amplifier generating compensating ASE noise. Arecco's role in the combination pertains to using a switched backup amplifier for performing the same function as the original amplifier in case the original amplifier fails.

Applicant also argues that Caprino and Arecco teach incompatible alternatives for handling a fault, with Caprino using ASE noise to compensate for loss of channel

Art Unit: 2613

power and Arecco teaching switching away from a broken path altogether. This argument is not persuasive because while Applicant generally summarizes Caprino correctly, Arecco is not limited to switching away from a broken path as asserted by Applicant, and more generally teaches switching away from a failed *amplifier* between two points by using a backup amplifier between the same two points. Amplifier failure phenomena is relevant to Caprino's "compensating" amplifier; namely, if the compensating amplifier *itself* should fail, the compensation ability would be lost, thus, as established in the combination, switching to a parallel backup amplifier *of the same type*, in the event of failure of Caprino's "compensating" amplifier would allow the compensation to continue.

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to NATHAN M. CURS whose telephone number is (571)272-3028. The examiner can normally be reached on 9:30-6:00. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ken Vanderpuye can be reached on (571) 272-3078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/NATHAN M CURS/

Primary Examiner, Art Unit 2613